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EXAMINER
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CHANG, KENT WU

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* RANDALL S. ESTEP

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Appeal 2007-4083  
Application 09/914,969  
Technology Center 2600

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Decided: March 31, 2008

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Before ANITA PELLMAN GROSS, MARC S. HOFF, and KARL  
EASTHOM, *Administrative Patent Judges*.

GROSS, *Administrative Patent Judge*.

DECISION ON APPEAL  
STATEMENT OF THE CASE

Estep (Appellant) appeals under 35 U.S.C. § 134 from the Examiner's Final Rejection of claims 1 through 18, which are all of the claims pending in this application. We have jurisdiction under 35 U.S.C. § 6(b).

Appellant's invention relates to an underwater diving mask which includes a speaking chamber and an embedded computer system each sealed from the underwater environment. *See* Spec. 3. Claim 1 is illustrative of the claimed invention, and it reads as follows:

1. A combination underwater diving mask and personal computer responsive to voice commands for use by a diver in an underwater diving environment, the diving mask and computer combination comprising:

a viewing portion defined by the diver's face and a lens;

a visual display device proximate the viewing portion to provide visual images to the diver including providing computer output screens;

a water-tight speaking chamber configured to sealingly engage a portion of the diver's face including the diver's mouth to permit the diver to speak while underwater so as to provide voice commands to the personal computer while underwater;

a sound transducer located proximal the speaking chamber;

a computer system disposed in a portion of the mask and operatively coupled to the sound transducer and to the visual display device, the computer system configured to provide the diver with a fully functional personal computer;

the computer system, the viewing portion and the speaking chamber sealingly isolated from the underwater diving environment; and

the computer system receiving electrical signals produced by the sound transducer and configured to recognize and identify the electrical signals as spoken words of the diver, the identified spoken words providing input to the computer; to direct the functions of the computer system so as to process data and provide visual images to the visual display in accordance with the processing of the data in response thereto to facilitate hands-free computer and other operation of the diver.

The prior art references of record relied upon by the Examiner in rejecting the appealed claims are:

Valley	US 5,574,794	Nov. 12, 1996
Larson	US 6,066,129	May 23, 2000

Hales

US 6,360,182 B1

Mar. 19, 2002  
(filed Oct. 27, 1999)

Claims 1 through 18 stand rejected under 35 U.S.C. § 103 as being unpatentable over Hales in view of Larson and Valley.

We refer to the Examiner's Answer (mailed April 18, 2006) and to Appellant's Brief (filed March 23, 2006) and Reply Brief (filed May 18, 2006) for the respective arguments.

### SUMMARY OF DECISION

As a consequence of our review, we will affirm the obviousness rejection of claims 1 through 18.

### OPINION

The Examiner (Ans. 3-5) asserts that a combination of Hales, Larson, and Valley renders the claimed invention obvious. Specifically, the Examiner asserts that Hales discloses all of claim 1 except for a speech recognition system. The Examiner relies upon Larson and Valley for a speech recognition system, speaking chamber, and sound transducer near the speaking chamber. Appellant contends (App. Br. 9-10 and Reply Br. 2-3) that Hales includes a "dive computer" rather than the claimed "fully functioning personal computer." Appellant further contends (App. Br. 10) that Hales fails to provide a speech recognition system, sound transducer, and water-tight speaking chamber. Appellant contends (App. Br. 10-11 and 15-18) that both Larson and Valley also fail to disclose the claimed speaking chamber and sound transducer near the speaking chamber. Appellant contends (App. Br. 10-14) that Larson is nonanalogous art and that there is

no motivation to combine Larson with Hales. Last, Appellant contends (App. Br. 18) that there is no reason to combine Valley with Hales.

We are, therefore, presented with several issues. In particular, the issues are 1) whether Hales discloses a fully functional personal computer, 2) whether Larson is analogous art, 3) whether Larson or Valley teaches a water tight speaking chamber and sound transducer near the speaking chamber, and 4) whether the Examiner has provided sufficient motivation for combining Larson and Valley with Hales.

Regarding Hales' computer, Appellant argues (App. Br. 9-10) that Hales discloses a typical diving computer, which is only capable of providing pre-programmed data and does not accept input from the diver once submerged. Appellant, on the other hand, claims a "computer system configured to provide the diver with a fully functional personal computer" (claim 1), a "computer system configured to provide the diver with a fully functional computer" (claim 15), and a "personal-type computer system" (claim 18). We agree that Hales (col. 2, l. 40- col. 3, l. 33 and l. 44-col. 4, l. 12) discusses dive computers. However, Hales discloses (col. 12, l. 52-col. 13, l. 10) that the microcomputer used is MC68HC11E2 from Motorola. MC68HC11E2 is a complete microprocessor architecture, which is especially attractive for automotive and battery-driven applications, according to the General Description in the Motorola MC68HC11 Reference Manual,<sup>1</sup> incorporated by reference by Hales (see col. 13, ll. 9-10). Therefore, we are unpersuaded that Hales' computer is limited to a typical dive computer.

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<sup>1</sup> The manual can be accessed online at <http://www.handyboard.com/techdocs/moto-6811-techref.pdf>.

As indicated, *supra*, Appellant argues that Larson cannot be combined with Hales because Larson is non-analogous art. We disagree. To be analogous, Larson must either be in the same field of endeavor as the invention or reasonably pertinent to the specific problem faced by the inventor. *See In re Deminski*, 796 F.2d 436, 442 (Fed. Cir. 1986) and *In re Clay*, 966 F.2d 656, 659 (Fed. Cir. 1992). Larson is directed to a medical control system, and, therefore, is not from the same field of endeavor. However, Larson discloses (col. 2, ll. 32-39; col. 3, ll. 21-24 and 37-50) that a surgeon often gets preoccupied with the task at hand and forgets to check safety data on a separate display, that having to look at the separate display disrupts the surgical procedure, and that it would be useful for the surgeon to have his own control console separate from a main control console. In other words, the objects of the invention of Larson are to provide a surgeon with a control system and a display which do not require the surgeon to use his hands or to look elsewhere, thereby disrupting the task at hand, to check safety data, which is reasonably pertinent to the specific problem faced by the inventor.<sup>2</sup>

Regarding the watertight speaking chamber and sound transducer, Larson discloses (col. 14, ll. 41-64) including a speech recognition program with a microphone to control laser beam CPG pattern selection, pattern width, beam intensity, or to respond to spoken status inquiries, all functions a surgeon might otherwise need to input into the computer console by hand. Hales discloses (col. 4, ll. 61-63) that the display is placed on the mask, so that the user need not move his hands to get information. It would have

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<sup>2</sup> Note, also, that Larson (col. 8, ll. 7-55) discusses patents in skydiving and diver systems and solutions proposed therein to the same problems.

been obvious to the skilled artisan to avoid having the diver use his hands for inputting information into the computer as well by including a speech recognition program and a microphone such as that used by Larson.<sup>3</sup> The addition of the speech recognition program and microphone to Hales' mask would be the predictable use of prior art elements according to their established functions, which the Supreme Court has held to be a nonobvious improvement. *See KSR Int'l v. Teleflex Inc.*, 127 S. Ct. 1727, 1740-41, (2007). Furthermore, since Hales' mask is used underwater, common sense would dictate to the skilled artisan that the microphone and speech recognition system would need to be in a water-tight speaking chamber, to prevent the diver from sounding like he is speaking underwater. A water-tight chamber would involve no more than "the background knowledge possessed by a person having ordinary skill in the art" and the "inferences and creative steps that a person of ordinary skill in the art would employ." *Id.*

As to the motivation for modifying Hales with the teachings of Larson and Valley, as explained *supra*, the Court held that in analyzing the obviousness of combining elements, a court need not find specific teachings, but rather may consider "the background knowledge possessed by a person having ordinary skill in the art" and "the inferences and creative steps that a person of ordinary skill in the art would employ." *Id.* To be nonobvious, an improvement must be "more than the predictable use of prior art elements according to their established functions." *Id.* As indicated *supra*, the

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<sup>3</sup> We note Appellant states (App. Br. 11) that "thousands of patents could be cited to pick and choose the feature of speech recognition from such a reference," thereby suggesting how well-known speech recognition systems and their functions are.

combination of Hales and Larson involves no more than the inferences and creative steps of the skilled artisan in applying prior art elements according to their established functions. The teachings of Valley are considered cumulative to Larson. Therefore, the Examiner has provided sufficient motivation for combining the references. Accordingly, we will sustain the obviousness rejection of claim 1, and of claims 2 through 18 which were not separately argued.

ORDER

The decision of the Examiner rejecting claims 1 through 18 under 35 U.S.C. § 103 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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